



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2009-0889; Product Identifier 2009-NE-35-AD; Amendment 39-19305; AD 2018-12-01]**

**RIN 2120-AA64**

**Airworthiness Directives; Safran Helicopter Engines, S.A., Turboshift Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are superseding Airworthiness Directive (AD) 2012-03-11 for all Safran Helicopter Engines, S.A., Arriel 2B and 2B1 turboshaft engines. AD 2012-03-11 required checking the transmissible torque between the low-pressure (LP) pump impeller and the high-pressure (HP) pump shaft on the HP/LP pump and metering valve assembly, hereafter referred to as the hydro-mechanical metering unit (HMU). Since we issued AD 2012-03-11, the manufacturer determined that incorporating Modification TU 178 is a more effective method to reduce the risk of uncoupling between the LP fuel pump impeller and the HP fuel pump shaft than the prior Modification TU 147. This AD requires inspection and possible replacement of the HMU. This AD was prompted by three cases of uncoupling of the HMU LP fuel pump impeller and the HP fuel pump shaft since AD 2012-03-11 was issued. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of March 11, 2010 (75 FR 5689, February 4, 2010).

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of March 20, 2012 (77 FR 8092, February 14, 2012).

**ADDRESSES:** For service information identified in this final rule, contact Safran Helicopter Engines, S.A., 40220 Tarnos, France; phone: (33) 05 59 74 40 00; fax: (33) 05 59 74 45 15. You may view this service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2009-0889.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2009-0889; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information, regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is Document Operations, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** John Frost, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7756; fax: 781-238-7199; email: [john.frost@faa.gov](mailto:john.frost@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2012-03-11, Amendment 39-16953 (77 FR 8092, February 14, 2012), (“AD 2012-03-11”). AD 2012-03-11 applied to all Safran Helicopter Engines, S.A., Arriel 2B and 2B1 turboshaft engines. The NPRM published in the Federal Register on October 6, 2017 (82 FR 46727). The NPRM was prompted by instances of uncoupling between the LP fuel pump impeller and the HP fuel pump shaft. The NPRM proposed to require inspection and, depending on the results of the inspection, possible replacement of the HMU. The NPRM also proposed to require replacement of pre-Modification TU 178 HMUs with an HMU incorporating Modification TU 178 within 2,200 engine flight hours or 72 months, whichever occurs first, after the effective date of this AD. We are issuing this AD to address the unsafe condition on these products.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA’s response to the comment.

### **Request to Clarify Reason for AD**

An individual commenter questioned how the new modification in this AD is better and different from the actions required by the previous AD 2012-03-11.

AD 2012-03-11 required a check of the transmissible torque between the LP fuel pump impeller and the HP fuel pump shaft and replacement of the HMU if it does not pass the torque check. Since we issued AD 2012-03-11, Safran Service Bulletin (SB) 292 73 2178, Version A, dated April 1, 2015 introduced Modification TU 178. This AD accepts Modification TU 178 as a more robust drive link between the LP fuel pump impeller and the HP fuel pump shaft that ensures the LP impeller pump is driven even if the link with

the drive shaft loosens. This AD requires installation of a Modification TU 178 HMU for any HMU that fails the torque sensor check and as a mandatory terminating action for the inspections required by this AD, as well as purging the fleet of the pre- and post-TU 147 configuration parts. We did not change this AD.

#### **Clarification to Service Information for Torque Check**

We updated paragraphs (g)(1)(i) and (ii) of this AD to clarify that only paragraph 2.A, rather than paragraph 2, in Turbomeca Alert Mandatory SB (MSB) A292 73 2830, Version B, dated July 10, 2009, and Turbomeca Alert MSB A292 73 2836, Version A, dated August 17, 2010, is used to perform the torque check.

#### **Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

#### **Related Service Information under 1 CFR Part 51**

We reviewed Turbomeca, S.A., Alert MSB A292 73 2830, Version B, dated July 10, 2009, and Alert MSB A292 73 2836, Version A, dated August 17, 2010. Turbomeca Alert MSB A292 73 2830, Version B, describes procedures for inspecting pre-Modification TU 147 HMUs. Turbomeca Alert MSB A292 73 2836, Version A, dated August 17, 2010, describes procedures for inspecting HMUs that have incorporated Modification TU 147. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

## Other Related Service Information

We reviewed Safran Helicopter Engines MSB 292 73 2178, Version B, dated March 23, 2017. Safran Helicopter Engines MSB 292 73 2178, Version B, describes HMU improvements that includes a reinforced drive link between the LP impeller and HP fuel pump shaft (Modification TU 178). Safran Helicopter Engines has also issued MSB A292 73 2830, Version C; and A292 73 2836, Version B, both dated April 5, 2017, which exempt HMUs incorporating Modification TU 178 from the inspections previously recommended by Safran Helicopter Engines.

## Costs of Compliance

We estimate that this AD affects 417 engines installed on helicopters of U.S. registry.

We estimate the following costs to comply with this AD:

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Remove and replace the HP/LP fuel pump metering unit.	2 work-hours × \$85 per hour = \$170	\$17,400	\$17,570	\$7,326,690

## Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by

prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

### **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2012-03-11, Amendment 39-16953 (77 FR 8092, February 14, 2012), and adding the following new AD:

2018-12-01 **Safran Helicopter Engines (Type Certificate previously held by Turbomeca, S.A.):** Amendment 39-19305; Docket No. FAA-2009-0889; Product Identifier 2009-NE-35-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD replaces AD 2012-03-11, Amendment 39-16953 (77 FR 8092, February 14, 2012).

#### **(c) Applicability**

This AD applies to Safran Helicopter Engines, S.A., Arriel 2B and 2B1 turboshaft engines, except those incorporating Modification TU 178.

#### **(d) Subject**

Joint Aircraft System Component (JASC) Code 7300, Engine Fuel and Control.

**(e) Unsafe Condition**

This AD was prompted by analysis that indicated the modification of an engine to incorporate Modification TU 178 provides a more effective method than Modification TU 147 to reduce the risk of uncoupling between the low-pressure (LP) fuel pump impeller and the high-pressure (HP) fuel pump shaft of the HP/LP pump and hydro-mechanical metering unit (HMU). We are issuing this AD to prevent failure of the HMU. The unsafe condition, if not corrected, could result in failure of the engine, in-flight shutdown, and loss of the helicopter.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Actions**

(1) Check the transmissible torque between the LP fuel pump impeller and the HP fuel pump shaft as follows:

(i) For pre-Modification TU 147 HMUs, check the torque before accumulating 500 engine flight hours (FHs) since March 11, 2010 or before the next flight after the effective date of this AD, whichever occurs later. Use Paragraph 2.A. of Turbomeca Alert Mandatory Service Bulletin (MSB) A292 73 2830, Version B, dated July 10, 2009 to do the check.

(ii) For HMUs that incorporated Modification TU 147 on or before March 31, 2010, and those HMUs not listed in Figure 2 or 3 of Turbomeca Alert MSB A292 73 2836, Version A, dated August 17, 2010, check the torque before the next flight after the effective date of this AD. Use Paragraph 2.A. of Turbomeca Alert MSB A292 73 2836, Version A, dated August 17, 2010, to do the check.

(2) If the HMU does not pass the torque check, replace the HMU with a post-Modification TU 178 HMU before the next flight after the effective date of this AD.



**(h) Mandatory Terminating Action**

Within 2,200 engine FHs or 72 months after the effective date of this AD, whichever occurs first, replace any pre-Modification TU 178 HMU with a post-Modification TU 178 configuration HMU.

**(i) Installation Prohibition**

After the effective date of this AD, do not install a pre-Modification TU 178 HMU on engines incorporating a post-Modification TU 178 HMU.

**(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k)(1) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(k) Related Information**

(1) For more information about this AD, contact John Frost, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7756; fax: 781-238-7199; email: john.frost@faa.gov.

(2) Refer to European Aviation Safety Agency (EASA) AD 2017-0102, dated June 13, 2017, for more information. You may examine the EASA AD on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2009-0889.

**(I) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on March 11, 2010 (75 FR 5689, February 4, 2010).

(i) Turbomeca Alert Mandatory Service Bulletin (MSB) No. A292 73 2830, Version B, dated July 10, 2009.

(ii) Reserved.

(4) The following service information was approved for IBR on March 20, 2012 (77 FR 8092, February 14, 2012).

(i) Turbomeca Alert MSB No. A292 73 2836, Version A, dated August 17, 2010.

(ii) Reserved.

(5) For Safran Helicopter Engines, S.A, service information identified in this AD, contact Safran Helicopter Engines, S.A., 40220 Tarnos, France; phone: (33) 05 59 74 40 00; fax: (33) 05 59 74 45 15.

(6) You may view this service information at FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759.

(7) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:  
<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on July 31, 2018.

Robert J. Ganley,  
Manager, Engine and Propeller Standards Branch,  
Aircraft Certification Service.

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